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ABSTRACT

This article focuses on the perception of the surface and deep dimensions of a society and its relation to competence. Participants were 117 students from various educational programs in a Swedish gymnasium who were exposed to videotaped projections of model societies on 2 occasions. They responded to 15 statements marking the degree of certainty with which they perceived quality of life in these societies. The instrument measured life quality (LQ) in a society by two factors, Eigenvalue (F1) and Visibility of Social Texture (F2). The model societies were based on three modes of modeling man interacting with his society, specifically on the concepts of: (1) behaviorism; (2) structuralism; and (3) process. The function of these concepts had been made to specify an actual society, namely Sweden. It was assumed that Sweden was familiar to the participants, but conceptually unknown. Between the two video occasions students were given a 9-week course in modern ideas and concepts, especially those from 20th century novels that connect to the three models. The certainty with which the students perceived the Eigenvalue and its conservation in Social Texture in the four societies differed significantly from the first to the second occasion. The first time, the only society that meets the requirements is the society based on behavior modification, while the other three seem unspecified to all the students. The second time there is a dramatic change in that Sweden now was assessed with the highest certainty, and secondly that is was conceptualized mainly by the behaviorist model. The study shows that the students have augmented their conceptual understanding of the dimensionality of a society and have come to "know" the society in which they live. (Contains 1 table, 4 figures, and 25 references.) (SLD)

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Abstract

This article focuses on the perception of the surface and deep dimensions of a society and its relation to competence. 117 students from various educational programs in a Swedish gymnasium participated in an experiment in which they were at two occasions exposed to videotaped projections of model societies. They responded to 15 statements marking the degree of certainty with which they perceived quality of life in these societies. The instrument measures Life Quality (LQ) in a certain civilisation by two factors, Eigenvalue (FI), and Visibility of Social Texture (FII). The model societies are based on three modes of modelling man interacting with his society, specifically on the concepts of (1) behaviourism, (2) structuralism, and (3) process. The function of these concepts has been to specify the actual society, namely Sweden. It is assumed that Sweden is familiar to the participants but conceptually unknown. Between the two occasions of video exposures the students were given a nine weeks course in modern ideas and concepts, especially those, which have been made dependent on 20th century novels and which connect to the three models. The certainty, with which the students perceive Eigenvalue and its conservation in Social Texture in the four societies, differs significantly from the first to the second occasion. The first time, the only society that meets the requirements is the society based on behaviour modification, while the other three seem unspecified to all the students. The second time a dramatic change takes place in that, firstly, Sweden now is assessed with highest certainty, and, secondly it gets its conceptual specification mainly by the behaviourist model. Thus the study has shown that the students have augmented their conceptual understanding of the dimensionality of a society and have come to "know" the society they live in.

An increasing concern about the state of affairs in an affluent society of the kind that modern societies represent is documented in newspapers and other publications (Lightfoot, 1988; School of Building and Real Estate, National University of Singapore, 1988). Affluence and personal development to a high degree rest on the accuracy of the members' awareness of the society they live in. This awareness concerns the way in which social and cultural life develops as well as how the society is organised and functions. Further, it concerns its internal conditions and its capacity to provide its members, single citizens or groups of citizens, with the tools they need for both personal growth and collective welfare. If the single citizen's personal progress is not guaranteed, this will be spread over negatively to important sectors, where also groups should gain in growth. A society can survive as civilisation only if its basic idea is transparent, which means that it must be carried through the socially visible layer (I. Bierschenk, 1997, 1998).

One problem connected to the perception of these dimensions is from a conceptual point of view that a familiar society is not knowable for a person because he is a part of it. What researchers and social planners are doing when they try to get at the citizens' opinions in matters of common concern is to collect their attitudes. However, it is a well-known fact among psychologists, physicians, lawyers, marketing consultants, and the like, that questionnaires do not measure anything else than what was expected by their constructor. Thus by the mere formulation of the question the citizen is manipulated, with all the consequences that this manipulation has for the single person and the society as a whole. For example, a study of the interaction between question and response has shown (I. Bierschenk, 1987) that the Swedes and the English behave in a submissive manner in relation to a question from somebody superior than do the Germans, the Americans and the Italians.

Consequently, there is a superficial layer of common values and preconceptions, culturally accepted attitudes to "the good life", whose fluctuations over time may be interesting to capture for the purpose of organising health and housing and so on. But to be conscious of civil dimensions is merely a matter of perceiving both the formal (organisational) and the structural (configurational) dimension. In order to measure this perception an instrument is required, which on one hand is sensitive to structural depth and is based on a theory of individuals on the other. If, namely, the single citizen's judgements are of any value, the perspective on society must be his and not the other way around.

Having accepted that both surface and depth perception is necessary for apprehending quality (degree of civilisation) of a society we cannot avoid introducing the concept of competence. Apparently there is a dependency between degree of civilisation and ability among the citizens to perceive it. Thus, the society has as competent citizens as it permits them to be. Therefore, the educational system has a key role in developing the kind of depth perception in the citizens that they need for making a common effort. However, with reference to the school of today, it is easy to observe that it is the surface function that is stressed, that is education for qualifications of various kinds, which are related to the texture of a society (I. Bierschenk, 1997). The young people are educated to be qualified carriers of the culturally and socially defined national costume. Whether this schooling leads to competence, i.e. something under, remains to be seen. With respect to the problems that many countries are facing today in asserting themselves as a "good society" for both academics and industry experts it seems as if the costume tends to be a "security blanket" (Lefrancois, 1983, p 316).

One measure of competence in the form of civil depth perception is the ability to apprehend changes and their consequences. In a study (B. Bierschenk 1992) this ability has been related to high achievement on a synthetic essay writing task given to some Swedish gymnasium classes, who wrote about Sweden as a land to live in. The study shows differences in civil perception between low and high achievers respectively. When achievement is related to self-assessment it could be observed that the teacher's grading of the essay not with certainty could be a measure of competence. The difference was apparent by two students' grades on achievement and assessment of their own achievement. In one case (Student 1) the teacher's and student's assessment were in agreement, whereas in the second case (Student 2) there was a great difference in the sense that the student made a higher assessment of himself than the teacher did. According to the teacher's assessment, Student 2 was higher than Student 1. The result of the task to describe Sweden indicates an interesting distinction in the students' perception of the two societal dimensions. Student 2 (highest teacher grading, lowest self-assessment) sees his familiar society in terms of "social engineering". To this student, learning the civil instruments for adapting to prevalent social, legal and ecological conditions are essential civil tasks. The dimension that he perceived thus is the formal one, the civil texture. Student 1 (teacher's and self-assessment alike) sees Sweden more as a system and has comprehended the ethical problems associated with organisational change, especially related to health service. This means that he perceives something functional over and above administrative instruments.

Competence may be regarded as a measure of civilisation (B. Bierschenk, 1995). Civil depth perception implies the ability to perceive both surface and depth simultaneously. The depth cannot be perceived without the surface, while the reverse is possible. Educational systems all aim at developing competence but it is hard for them to prove some effects other than qualifications. In the study referred to, both students had received the same grades as testimony of the acquired qualification, but Student 2 did not have the competence that corresponded to the qualified surface.

Against this background, the following issue would be relevant for this experiment: Can competence in the form of perception of the familiar society be developed through education?

Method

A method suited for measuring individuals' perception of civil dimensionality must be founded on some theory of perception as well as some theory of the environment, that is, a theory which builds on the individual in interaction with a certain environment. Such a foundation is to be found in James J. Gibson's (1979) ecological theory of perception, which has been made concrete in the well-known "Visual Cliff" experiment on depth perception as inborn quality (Gibson & Walk, 1960). According to Gibson, an environment has form and structure, which the individual (perceiver) by moving himself in it can directly pick up by his perceptual apparatus, provided that he has formed the invariants. The infants being exposed to the visual cliff must perceive that there is a break in the environment in the form of a distance between the familiar surface they are placed on and something unknown in front of them. The child who immediately sees this and reacts adequately with expressions indicating fear has perceived the depth and has demonstrated survival competence. Similarly, older children and grown ups are supposed to have built up corresponding invariants that make them competent to judge known and unknown

dimensions in the society of which they are progressively being a part. However, the concrete environment has been transformed into something more complex. When the infant relies on its sense of touch to orient itself, the adult's sensitivity is based on his conceptual configuration. Fortunately, the theory of ecological perception incorporates both perceiving and conceiving and has closed the gap between knowledge and knowing one's environment. It is therefore possible to assume, as B. Bierschenk (1984) does, that the knowability of an environment is the result of a successful differentiation between knowledge (or facts) and knowing as a process, which is manifested in an action by the individual. As a consequence, the degree of disparity in a society is of utmost importance for the development of civilisation invariants in the citizens. (The theoretical grounds of the environment are given in the materials section below.)

Participating Students

The participating students were around 19 years of age and at the time of the study enrolled at a city gymnasium, situated in the university town of Lund, southern Sweden, in 1996/97. They numbered 117 in all and represented four classes, one from the aesthetics program, which will be marked with (AE). Two classes come from the natural sciences program. The first one is a normal class and therefore will be marked with (N). The second class has a humanistic orientation and will be marked with (NH). Finally the participating class from the social sciences program will be marked with (SC). The teacher, who was responsible for the experiment, had known all the students since their first year. At the time of testing, 101 students showed up at the first occasion, while 96 students had participated in the second testing.

Materials

For the study of dimensions of a civilisation an audio-visual material was used, which consisted of video taped slides. The slides have been produced by the Biological Science Curriculum Study at the University of Boulder, CO, in co-operation with Crystal Productions in Seattle, CA. The material, which highlights the conditions of man in modern society, was produced for educational purposes. It consists of three "projections for the future" (Lee & Mayer, 1976), each of which builds on a basic model. Two are easily recognised from psychology, namely the "Behaviour model" and the "Gestalt model", here called the "Humanist model". The third one is recognised from a broader and more technological perspective in terms of the "Growth model". Each one of these projections presents a civilisation that builds on the respective model's possibilities and constraints in getting human and civil functions to interact. They concretise the model by a narrative lasting for about 10 minutes about a person's life conditions in a certain society. The stories are shortly the following.

Behaviour model (B). A young man is found in a park and is rescued from under-nourishment. He is taken to hospital but is suffering amnesia. A story develops in which the society in the form of a physician and his assistant by means of behaviour modification try to adapt the young man to a collective. A central concept is the loss of identity.

Humanist model (H). A young man arrives by a modern craft at an ecological tree farm. He gets a mentor, who is a researcher, and who will teach him to make progress and to know himself in interaction with the environment. The story about the young man's developmental progress is permeated with a feeling for dignity.

Growth model (G). A young man lives in a technically sensitive society and is on his way to a modern city. He faces the vulnerability of the society in its dysfunction, which symbolise the limits of certain interacting systems. The need for recreating quality of life is concretised.

Operationalised Theory

The material, which additionally contains film versions, was prepared for education at upper secondary as well as university levels; its constructors are university professors in behaviour science, social science, and technology. The material concretises the respective model with the same actors. These have been chosen carefully with respect to the American society and represent three ethnic groups. In order to avoid that the values of the observer influence the study of the three societies the same three main characters have been used the whole series through.

No matter how professional an educational material may be, for scientific use, however, it must meet other requirements. It is not evident from the program guide that the model components that have been governing the production of the material also carry the theoretical dimensions that are implied by the models. How do we know that the narrative is carrying over the correct signals to the observer, for example an associative way of functioning in the civil official's work with the young man who had lost memory? For sure, to be able to place the models into the correct theoretical box is not enough when they will be used for precise measurement of perception.

In a study of constructing a behaviour simulator, B. Bierschenk (1978) has made evident that the three scientific paradigms association, structure, and process contain well-defined concepts, which may be operationalised into information carrying signals. Through the assessments of paradigmatic characteristics by an expert panel on a nine point scale (with the poles "does not emerge at all" – "emerges clearly") three distinct factors could be distinguished (B. Bierschenk, 1978, Table 2), which reflect association, structure, and process. In another study of perception of quality of life, in which the three slide series were used, it was tested through a panel of behaviour science educators the extent to which the three models may be associated with the three paradigms. In B. Bierschenk (1987, p 5, Table 1) the result is presented and discussed. (The Effect-size index (η^2) has been recalculated as correlation.) The B-model shows a high correlation (η=0.70) with the associations paradigm. The results correspond to the constructors' idea that concepts like reinforcement, for example, would be visualised in the scenario. The H-model correlates even higher (η=0.79) with the structure paradigm. Evidently, the ambition to build in the intellectual behaviour as a result of biological processes has been successful. But the panel has not been able to perceive concepts from the process paradigm in the story of the G-model (η=0.00). Instead this model correlates with association (η=0.88), which should be interpreted such that the systems theoretical concepts of steering and control, basic to the cybernetic process, have been mixed up with the "small steps" principle of the SR theory.

The narratives that are enacted in the model societies are built up mainly by dialogues, but they are underlined by both panoramic views and close-up pictures of the surroundings and the technical standard of private life. In spite of model differences no society should signal a lower technical standard than the others. The program designers accordingly stress that the models should be regarded as value free, in the sense that every negative trend gets its positive pole in the portray. The

basic idea thus is that each society must be conceived of as good to live in provided that we do not know of any other. That this circumstance calls for special demands both on the observation instrument, experimental design, and procedure will be made clear in the following sections.

For the illustration of some characteristics of the material a prototypical scene from each series has been selected together with its sound illustration. (Permission to reproduce the material for scientific purposes has been given in January 1986 by BSCS in Colorado Springs.)

Illustrations

The first society, the B-model, contains 44 scenes and takes exactly 9.0 minutes. The following scene has no. 32 and is displayed at time 5.55 in the sequence. The rehabilitation of the young man, who has been given the name Ishmael, has started (denoted as MC = main character). Mary, the assistant, (M) wants him to come with her to a social evening, but he has just refused.

Picture 1.

Behaviour Model (B), scene 32

Scene 32.
Picture: Mary leaves the room. She turns her back at MC and her front towards the viewer.
Sound:
M: Ishmael, you have been sick. Maybe you still are. (Sharp background sound).
MC: Why are you angry?
M: We are never angry, Ishmael, we help each other, but I can't help you by myself.

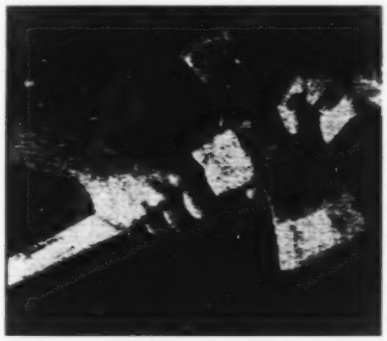
Comment. The scene illustrates the idea that you should not fight single-handed. When the collective ("we") works for the best of everybody, no feelings are needed. The help that Mary refers to means help to helplessness but at the same time to freedom from responsibility. Individual wishes are not desired and may be a symptom of illness, which can be cured by behaviour modification, brought about by a collective effort.

The second society, the H-model, contains 77 scenes and takes 11.06 minutes. Scene 43 is displayed at time 6.18. The young man (MC) and his mentor (M) have

just stopped in front of an old tree, which MC is about to cut at the same time as he will learn what happens to him mentally.

Picture 2.

Humanist Model (H), scene 43



Scene 43.
Picture: Two hands meet and an axe is transferred from one to the other.
Sound: Why?
M: It's not for the tree's sake, it's for yours.

Comment. The scene illustrates the importance of heritage, the propagation of the mental power of the older man via "the hand over" to the younger. With the axe a mature or less fitted Gestalt is broken down to pave the way for a new one. Man has to understand himself as part of the recycling process. In this symbolism is embedded the care for life as well as the idea of the inexorable evolution.

The third society, the G-model, contains 48 scenes and takes 7.38 minutes. Scene 5 shows the young man and a woman (W) who have just taken two boxes out of a fridge. They are listening to the latest news from the energy and environment departments.

Picture 3.

Growth Model (G), scene 5

Scene 5.
Picture: MC and W are sitting in front of each other eating breakfast.
Sound:
Male speaker: Remember mothers, your little daughters will learn without regrets with "O-no-wets", the preventive with the adoption centre guarantee, secure from age ten. Available now at your drug store shelf. A bulletin just came in: the general communication channels 56 through 60 have temporarily gone out of use.

Comment. The scene illustrates the information society, its daily dependence on getting to know what functions and what does not for the planning of one's daily life. The problem with population growth has been rationally solved, biological inheritance as well as natural functions can be put out of play. The individual controls his role in the process of civil progress, a personal effort that requires both flexibility and adaptation.

Analysis of Dialogue Text

The theoretical anchorage of the scenes has been further controlled. Elstrup Rasmussen (1998) has analysed the dialogues of every scene with the method Perspective Text Analysis (PTA). (Note: In this section, the cursive concepts are the result of his PTA. PTA has been developed by B. and I. Bierschenk and was translated onto a PC system by H. Helmersson.) The study of dialogues was carried out to examine which aspects of the theories that are carried by the characters.

In the B-model, several aspects of MC's text may be related to the principles of behaviourism, although not entirely. MC expresses the ability for self-preservation, self-sufficiency and *defeatism*, for instance. MC's text has got a mixture of analytic and synthetic concepts, maybe because this role signifies an involuntary participation in the system. Some ground does not appear. The doctor is portrayed by analytic, behaviourist concepts. He is responsible for the treatment of MC and in his text his purpose emerges, which is *encapsulation*. In a society based on behaviourism the only activity would be *shaping*, and this concept constitutes the ground of the doctor. Mary, the assistant, gets a direction function in the series, according to Elstrup Rasmussen. Mary is the surface of the society and is actually the main character, although hidden. She personifies the unknown voice of the collective, sometimes a tool sometimes an active agent. This ambiguity together with the mass movement of which she is a product forms the concept *mob* as the most concentrated concept in her text. But she counteracts the mob tendencies by *trust* in the system's support and thus her figure represents primarily *political correctness*. Her ground is to *contribute* in maintaining the system. Thus it is possible to represent the figure of a text, i.e. the main focus, and the ground on which it rests.

In the H-model, MC is expressing an unbroken development. In contrast to MC in the behaviour model he does not have to fight against people. By struggling with a task he gets exercise, he learns his lesson and this gives him relief. After this process, the consequent concept is *guided maturity*. The ground is the experience-based way of learning, which may be summarised into *aha-experience*. In the role of the mentor the ecological consciousness is portrayed. His educational program focuses on core curriculum and therefore he concentrates on helping his adept in acquiring self-security step by step. Deepest in his textual structure is *framing*. But reciprocity and collaboration are required in the forming of a Gestalt and furthermore

an attitude based on *negotiation*. The ground directly reflects the Gestalt theory. According to mentor's text it is built up by a concentrated experience and reaches the fully developed Gestalt through *achievement*.

The characteristics of the G-model have made Elstrup Rasmussen analyse the surrounding society as interacting with MC instead of another person. The figure of MC's text declares that he is on his way towards a specific goal, which is reachable, although he does not know how. He posits himself in various situations, tests the society. The kernel of the process is *exploration*. What is stressed in his way of conduct vis-à-vis the environment is *enterprising*, which is built up by self-organisation and innovation. The ground is *curiosity*, which is made visible by his interacting with various social habitats. The surrounding environment stands for instability and turbulence, but also for example constructive thinking and adaptation. Thus there is both *competence* and *aggressiveness* in the structure, which are basic components in a society in which competition is prevalent. The concept coming up as the central in the ground is *balancing*, which can be recognised as fundamental within cybernetics.

With reference to the introductory discussion about the surface and deep dimensions of a civilisation the illustrations may be guiding. The B-society has a strong and almost dense surface, which means that some deep dimension is hard to perceive, if it exists at all. The society seems shallow, all that needs to be known refers to the social dimension. For example, the concept health, which is so important for the good life is basically defined in social-administrative and consequently instrumental terms ("We cure you"). The H-society, on the contrary, is an illustration of deep dimensions. Social texture is completely open and therefore hard to perceive. The illustrating scene chosen is typical, as it is abstract, i.e. metaphoric. Health in this society is quite naturally something mental. In the G-society, which in fact may be perceived in both surface and depth dimensions, health becomes functional and thus highly dependent on technology. Health is a medical concept. The information and control of information, that is, communication, is determining the citizens' actions and governs as well as limits civil progress.

Measuring Instrument

The instrument used for the observation of the civilisation models has been developed during many years (B. Bierschenk, 1987, 1988, 1989, 1992, 1997, 1998a). In order to separate experimentally the effects of competence and environment, it is sufficient to restrict the levels of competence to a generation of scores on "Eigenvalue" and "Visibility of Social Texture". However, indicative of experience is the environment of the single individual that has influenced the evolution of certain patterns of judgement (B. Bierschenk, 1998a). The following instructions and markers of perceptual sensitivity have been replicated over the last 15 years (B. Bierschenk, 1997):

INSTRUCTIONS

You will be shown a picture series on video presenting a vision of a modern society where current trends have been allowed to progress even further. It is intended to give you the opportunity of imagining yourself as part of this society. You are asked to try and picture yourself in this society in such a way that you can form a clear conception of basic conditions, which would influence your life, if you were to live there.

After the display, you will be asked to give an account of your situation within the society depicted. You are to evaluate a number of statements about life there. In your assessment you may want to keep in mind some events or characteristics you find worth of serious consideration. You can do this by indicating how true or untrue you think each statement is with regard to the society by giving it a grade from 0 to 9. If you think it is "very certain" you should give it a 9, whereas if you think it is "not at all certain", indicate this by giving the statement a grade of 0. The degree of truth in each statement can be expected to vary, so don't hesitate to use the entire scale from 0 to 9. Please complete your assessment fairly quickly. Try and keep up a good pace, but don't leave anything out. Avoid making unnecessary corrections.

A. I am able to travel both within the country and abroad as I please.
B. I can direct my development on my own premises.
C. My right to privacy is guaranteed.
D. I can participate freely in organised opposition to those in power.
E. I can deal with the various aspects of my overall situation without undergoing undue stress.
F. I have the possibility of adapting my life to major changes in society.
G. I can choose the job I wish.
H. I can do whatever I like, as long as I do not infringe upon the rights of others.
I. I can make an active contribution to the re-evaluation of accepted morality.
J. I can obtain the education best suited to me.
K. I encounter new technical solutions in my everyday life.
L. My position in society depends upon the educational system.
M. My health depends upon society's technological development.
N. I can realise all my material desires.
O. My status in the society depends upon my education.

On the basis of the I-reference in the statements, the experimental subjects are expected to judge the sequences of events in agreement with their own personal frames of reference. Accordingly, in the choice of possible end-point description, several alternatives are at hand. One could choose between judgement of (1) probability, (2) necessity, or (3) certainty. A person does not only act, but tries to make judgements and tries to understand his own actions in this process. Therefore, he may appear very confident of the basis of his concepts of reasoning, but may be quite uncertain about the actual state. This relativity in certainty differs qualitatively from objective probability estimates. Moreover, it is expected that one's assessment of certainty will have an influential impact on one's thinking and decision making.

Thus, in considering the derived factors (FI, FII), the configuration has to be conceived from the information processing point of view. This means that the organisation of these statements has to be comprehended with a focus on the information, flowing among the components. The assessment scales now in use measure the regularity in the response patterns irrespective of model.

By means of exploring and testing the instrument during the years, two orthogonal factors have been established. One is measuring "Eigenvalue", that is, (FI) measures the possibility to personal development in a certain society. The other is "Visibility of Social Texture", that is, (FII) measures the extent to which a social

texture conserves Eigenvalue as civil property. The two factors correspond to a statistically significant measure of what might be termed "civil disparity" or a "transformed visual cliff" (B. Bierschenk, 1989). The stability in the factor structure has been tested on a Swedish panel longitudinally and on a Danish panel in 1997 (B. Bierschenk, 1998b). The factors have proved to be stable over time, even with the cultural comparison between Sweden and Denmark, two Scandinavian countries, which in many other respects differ structurally. They also hold in a quite different society, namely Singapore (Bierschenk & Yuen, 1998). The index for measuring the stability in the instrument is the root mean square, which imposes very stringent similarity requirements on the scales.

Design and Procedure

The present study has been designed as a replication. The first experiment took place in February 1997, the second experiment was carried out in May 1997. At both occasions, the classes have assessed the three model societies as well as the Swedish model, which will be marked with (S), the S-model, however, without video support. The models were presented in random order for each class. Moreover, the 15 statements given above were randomised for each student and model. But, the identity of the respondents was deliberately not controlled in order to guarantee anonymity.

In the meantime the classes have gone through a course in 20th century ideas the way they appear in modern literature. The course was a part of the ordinary curriculum at the third year level. The literature study took its point of departure in the main concepts of the three models with the purpose of letting the students meet the fact that the currents of time appear both in the scientific world and in arts and literature as well. During the course, the teacher made due reference to the model societies, because ideas transformed into literary novels are more complex to detect. There was also a purpose to train the students in comprehending the way in which a concept can be applied as a "hidden" thread in a narrative. This methodological procedure follows Thompson's (1997, p 286) argumentation: "If a skill is properly analysed behaviourally, it takes nothing away from the skill to attempt to train it explicitly rather than to leave its occurrence up to unknown circumstances." Detailed information about the design of this component of the experiment can be found in I. Bierschenk (1997).

Results

The societies contain ecological invariants, which specify the structure. Since the model societies are known as to their specification, the degree of discrimination is a measure on the effectiveness in picking up the informational invariance. This ability, which in this context is assumed to define competence, in its turn, depends on the observers' frame of reference. Therefore Sweden should be regarded as the model they think they know the best and against which they compare all the others. As a consequence, competence in judging the familiar society depends on the observers' knowledge of the model societies. If education has any effect such that beliefs are changed into knowledge, the result must be interpreted such that the familiar society is most similar to the society that is perceived with the same certainty. It is important, though, to keep in mind that the method of measurement does not build on indicators, to which the respondent reacts analytically. Specification is directly perceived, that is, it is synthetic and need not be conscious by the perceiver. For similar reason the factor

names of (FI, FII) will not be used in the presentation and discussion of results, but instead "depth" and "surface" or concepts related to this disparity relation.

The presentation of the results in Figures (1 to 4) will be based on the observed interaction effects of Table 1, i.e., model perception in relation to class. The values of (η^2) stand for the size of the effects of the underlying multivariate analysis of variance. They have been produced with statistical programs from MINITAB (1996).

Table 1.

General Linear Model Analysis: Test of all Main and Interaction Terms

Occasion	Scale	Terms	η^2	F	DF	P
Feb. 1997	FI	Model (M)	0.451	106.44	3, 388	0.000
		Class (C)	0.008	1.05	3, 388	0.372
		M*C	0.344	22.56	9, 388	0.000
	FII	Model (M)	0.013	1.72	3, 388	0.161
		Class (C)	0.002	0.27	3, 388	0.844
		M*C	0.193	26.57	9, 388	0.009
May 1997	FI	Model (M)	0.483	114.54	3, 368	0.000
		Class (C)	0.003	0.43	3, 368	0.734
		M*C	0.265	14.75	9, 368	0.000
	FII	Model (M)	0.138	19.78	3, 368	0.000
		Class (C)	0.004	0.53	3, 368	0.661
		M*C	0.164	8.06	9, 368	0.000

η2 = Proportion of explained variance; F = F-quotient (systematic variance/error variance)
DF = degrees of freedom; P = probability for significance; FI = Eigenvalue; FII = Visibility of Social Texture

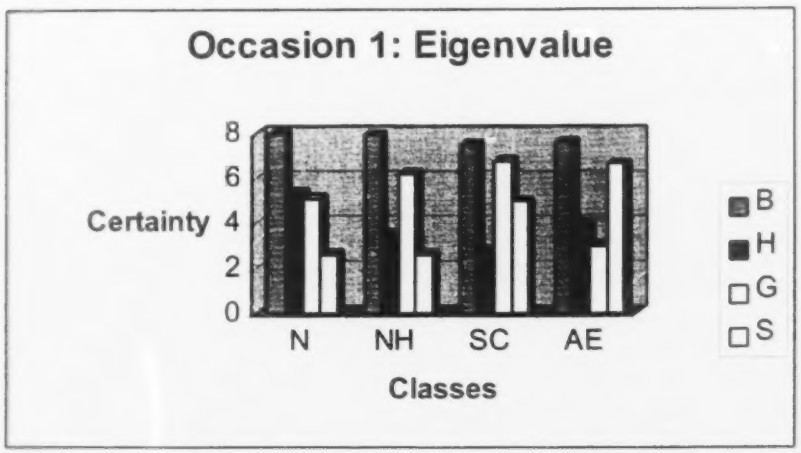
Civil Disparity – Occasion 1

Figure 1 shows the way in which the four classes at occasion 1 have perceived the potential for individual progress in the context of the four models. As can be seen, the B-model, specifying the behaviourist society, will provide the greatest possibilities. All four classes are very certain that this is so. The perception of the other models is varying. Thus there are also some possibilities in the G-society. NH-students and the SC-students are fairly certain as to the possibilities of personal development in a G-society while the other two classes are not, especially not the AE-students. The H-society has not much of developmental signals except for N-students and to a certain degree the AE-students. Finally, the S-model, representing the familiar society, has a negative specification to N&NH-students. But to the AE-students its specification seems to be more positive, while the SC-class seems indifferent.

However, to signalise its developmental support a society needs to have a texture that carries this specification. Figure 2 shows the way in which the students perceive the degree to which such a socially determined surface may be present in the model societies at occasion 1. The B-society, once again, is perceived to have a social surface, which is more supporting than the other three model societies, seen over all four classes.

Figure 1.

Certainty in Perceived Progress – Occasion 1



Note: N: Natural Science, normal
NH: Natural Science, humanistic
SC: Social Science
AE: Aesthetics

B: Behaviour Model
H: Humanist Model
G: Growth Model
S: Swedish Model

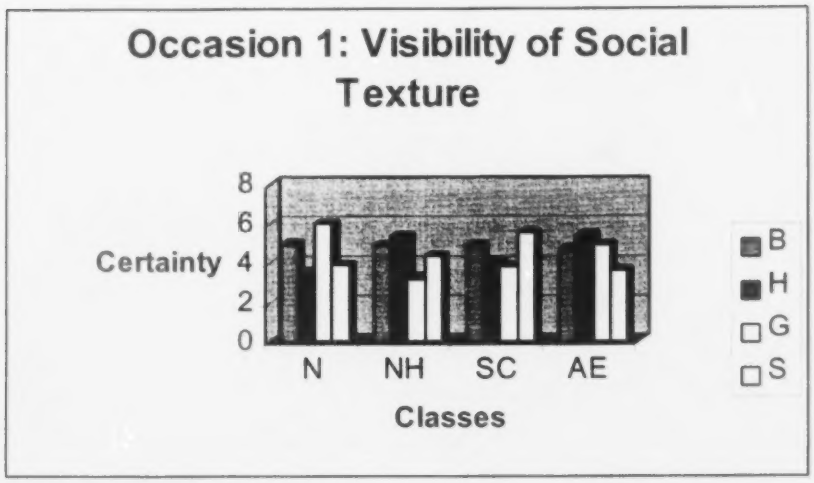
Speaking in ecological terms there seems to be invariants of positive affordance character in the behaviourism that are easily picked up by the students irrespective of study program. With respect to the G-society, especially the N-students but also the AE-class is fairly certain about what they perceive on the surface as opposed to the other two classes. Compared to the perception of developmental possibilities, this result is almost the reverse. NH-students and AE-students are seeing the surface of the H-society with more certainty compared to the N- and SC-students. The social surface of Sweden, however, has got a relatively high specification in the perception of the SC-class but not in the perception of the others.

A trend that can be observed is that all four classes perceive the relationship between the disparity of the B-model similarly. This result is likely to mean that these young people are trained within the invariants of the behaviourism. However, they may not be conscious of the model conditions, because their own society has not been judged accordingly. To the theoretical classes (N, NH, SC), the progress specification of the G-society is perceived with relative certainty, but only the N-students seem to be certain of its texture. According to the N&NH-students, Sweden is as confusing as the H-society in perceived degree of progress. The SC-students have a relatively high degree of certainty in judging their own society's social visibility but the perception of personal growth is low. The AE-students form the contrast to the N&NH-students. For them Sweden is structurally a B-society, although without surface support. It is obvious from their judgements in general that they do not differentiate between the model societies.

To be able to perceive depth dimensions of a civilisation one must have some knowledge of the models of man and society, which has been operationalised by the experimental environment. In general it can be stated that the B-Model is very shallow. Its texture and structure are so close to each other that the invariants that

Figure 2.

Conservation of Perceived Progress – Occasion 1



Note: N: Natural Science, normal
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specify depth are diffusing with the textural invariants and together they make up a dense surface. The consequences for the perception of depth may be that it rests on the society's organisational costume. The surface is taken for depth, and so one consequence can be that the representatives of health care are perceived as if they carried the white "helper's dress". It would imply that the students have inferred depth from out of a social-administrative texture where depth cannot exist. This may be an effect of a strong model influence on them from the society they live in.

For the H-society, the requirements of perception are quite the opposite. The world on the tree farm seems to visualise the unorganised and simple life, which may easily be taken for soft in the sense of loose and unstructured. Judging by their surface behaviour, the people of the narrative do not signalise progress but, in fact, the mentor works both practically and symbolically towards the forming of his adept. But the students do not seem to have the concepts for perceiving this disparity, because the differentiation displayed in the Figures (1,2) is unsystematic. In this society texture and structure are diffusing for the students, maybe not to a dense surface but to something obscure. The model specification, therefore, requires a lot of direct perception ability.

Concerning the G- society, it is certainly so that some similarities with the B-society have been perceived, because of its associative working. The theoretical classes may have picked up some functional properties. What the students apparently had no concepts for, however, is the relationship between deep and surface properties of the concept, except for the N-students. In this society the citizens are collaborating in reaching prosperity and the observer needs to be conscious of the interactive functioning to realise the relationship between dynamics and growth. Whether the N-students really observed this specification of man–system in interaction cannot be inferred from the analysis so far.

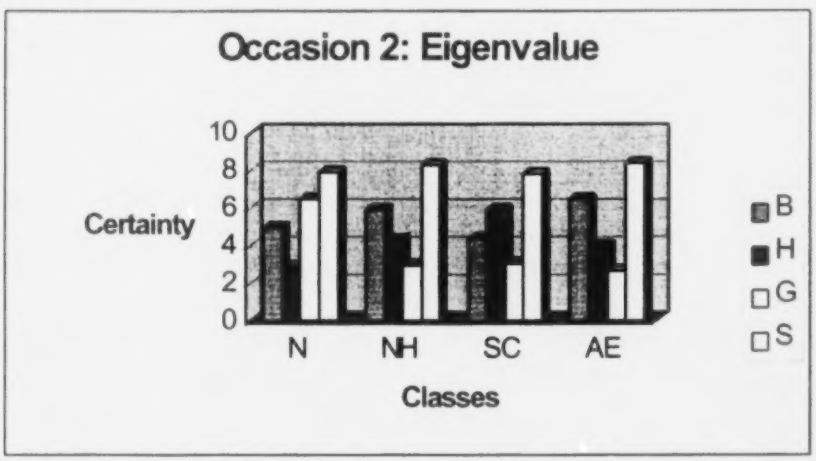
Evidently the students are very uncertain as to what Sweden can do for their personal growth. The familiar society, seen in the combination of social texture and capability to make visible the possibilities for individual progress, has a negative affordance. In analogy with the Visual Cliff studies, this would mean that these 19-year-olds would be incompetent to master those situations in the Swedish society, which demand the ability to perceive surface and depth in disparity, i.e. simultaneously.

Civil Disparity – Occasion 2

After a period of influence during which modern concepts and their application into literary texts were studied, the four classes have got a contextualisation of the concepts. The question that may be relevant before the second test occasion is whether the students have been able to transform this knowledge into civil perception. Figure 3 shows their judgements of the specifications of personal development at occasion 2.

Figure 3.

Certainty in Perceived Progress – Occasion 2



Note: N: Natural Science, normal
NH: Natural Science, humanistic
SC: Social Science
AE: Aesthetics

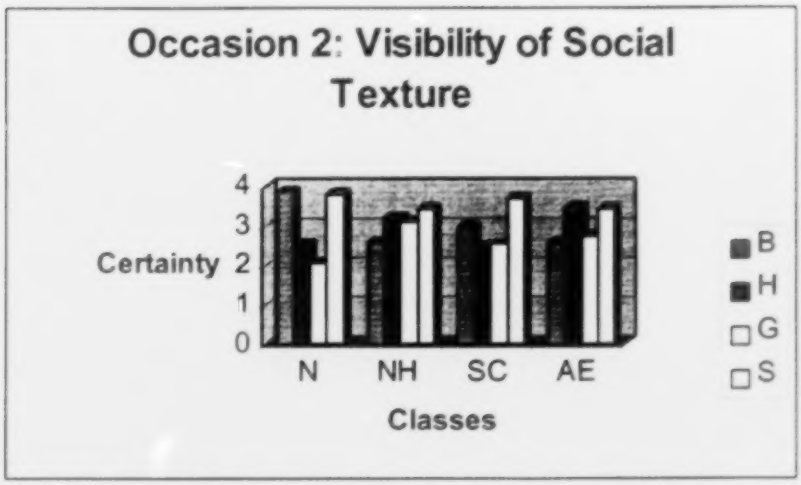
B: Behaviour Model
H: Humanist Model
G: Growth Model
S: Swedish Model

After initially having manifested a very confused picture of their own society, the students this time show a striking new trend. Sweden takes the same position with respect to personal development as the B-model at occasion 1. The NH- and AE-students are the contributing classes in the first place. To the N-students, Sweden is specified by the process paradigm while the other three classes are very uncertain as to whether process concepts are specifying Sweden. To the SC-students, on the contrary, concepts of the structure paradigm have been specifying to a certain extent, to which the other classes obviously have not been attracted.

Figure 4, which displays the perception of social texture at occasion 2, might give clues to what has been governing the structural pick up. Concerning the social surface it is evident that the perception of it has become more uncertain.

Figure 4.

Conservation of Perceived Progress – Occasion 2



Note: N: Natural Science, normal
NH: Natural Science, humanistic
SC: Social Science
AE: Aesthetics

B: Behaviour Model
H: Humanist Model
G: Growth Model
S: Swedish Model

Only a restricted range of the scale has been used. Sweden is placed at the highest position and has further got an exact model specification by two classes. According to the N-students, Sweden is a B-society on the social surface, which would imply that it is the steering and control properties that carry possibilities for personal development. Also the AE-students have a specified conception of Sweden, namely as a H-society in its social dimensions. It could be inferred that in its diffuse texture these students see an environmentally determined model for development. To the NH-students, Sweden is close to structure, but with process components visible on the surface, which possibly points to a specification of progress. But since they conceive of development as primarily connected with the B-model, it is very likely that to these students the determinism in the evolution process carries the structure. Likewise the SC-students perceive the similarities between the H- and G-models, but in the texture, the B-model lies closer to the S-model. Thus on the surface, Sweden is seen as a B-society, which fosters developmental progress through behaviour modification.

Conceptual Foundation

So far the results have been inferred with reference to the paradigmatic cues that were built into the model societies. Thus it can be concluded that the perception of Sweden as a "civil cliff" differs with respect to the perspective of the participating students. To the N-students, Sweden constitutes a G|B-cliff and in that, their perception is unique. In the eyes of the NH-students, Sweden rather makes up a B|H-cliff, a perception, which they share with the AE-students. When the SC-students judge Sweden, its bank has a disparity expressed as an H|B-cliff. However, there are

to be seen overall differences between the two video-exposures that may be explained against the background of the literature course that took place in the meantime.

Based on the concepts, a statistically well-defined evolutionary scale has been established, which orders the conceptual structure into four distinct levels of difficulty (I. Bierschenk, 1997). The concepts were weighted in relation to a predefined order between the three models and also as to whether they are specifying shallow or deep characteristics. It was confirmed that the concepts specifying the B-model, shallow as well as deep, were easiest to comprehend and thus they constitute the lowest degree on the evolutionary scale. The concepts are *Behaviourism, Surrealism* (shallow), *Existentialism, Futurism, Provincialism,* and *Psychoanalysis* (deep). The second level is determined by the shallow concepts of the H-model. These are *Magic Realism, Romanticism,* and *Social Realism,* while the deep concepts of this model form a level of their own, namely the fourth level, which constitutes a degree of difficulty far above the other groups, *Expressionism, Gestalt, Idealism of the Commons,* and *War (Destruction).* Deep Process concepts are third level concepts, namely *Functionalism* and *Time*, while the shallow concept of this model *(Futurism)* was empirically assigned the Behaviourism, i.e. the first level. The explanation is that the studied literature, such as "1984" by Orwell and "Brave New World" by Huxley are future-oriented novels, which at the same time are describing, although with various texture, the behaviourism in civil function. Concerning the conceptual disparity of the two novels, readers who are untrained in picking up the basic idea easily mix up the differences of the novels.

The four classes performed similarly on the comprehension test that terminated the course, that is, there are no statistically significant differences in their comprehension of the concepts seen to the number of correct answers. However, more interesting is that the classes show an individual profile when their answers are looked upon in terms of which concepts they most easily have comprehended. The only concepts that do not differentiate the classes are Behaviourism and Futurism. These have been easiest to comprehend and, obviously to conceive in operation. The NH- and the AE-class perceive Sweden by an identical model disparity, namely (H) on the surface and (B) in depth but they show conceptually very different profiles. Most characteristic of the NH-class are concepts such as Surrealism and Existentialism, that is, first level concepts. This points to a conception of the familiar society as dim and irrational on the surface and intellectually and emotionally imprisoned in depth. The AE-class shows one concept, except Behaviourism and Futurism, which might be typical, namely Social Realism (as applied in working class literature). It seems as if these students think of Sweden as a society in which the members strive towards materialism. The SC-class has a highly unclear profile. Only Psychoanalysis comes out as typical for them. Therefore in their conception of their own society (S) they are focusing the manipulative properties, which create dependency relations that might develop into anxiety. N-students show a striking profile, which is dominated by deep structure concepts, namely Gestalt, Idealism of the Commons, and War (Destruction). With respect to their model disparity it is very likely, though, that it is the functional properties of the concepts that afforded them. For example, it is not the Gestalt in itself that they conceive, but rather the way in which it is formed. In this sense the society is seen in terms of tension and conflict and their reduction means.

Discussion

There is well-founded evidence that in the genetic endowment of both humans and animals there is an ability to discover disparities in an environment and to avoid places that are specified by a negative affordance, which implies danger. This is a matter of adapting for survival. The infant on the Visual Cliff has not learnt the concept of depth or the concept of height. When he refuses to crawl over the glass top, which is to give the illusion of depth, he reacts adequately to the ecological invariants even though he has not been exposed to them before (Gibson & Walk, 1960). Even new-borns show this ability and reacts with defence behaviour when faced with something threatening, either it is a real object or a shadow simulating a real object (Ball & Tronick, 1971). Those kinds of experimental results support Gibson's theory that humans have an inborn survival competence, that is, already as new-borns they interact with the environment and build up invariants to be able to react directly and adequately in critical situations. Thus the natural behaviour is to have adequate reaction patterns for the environment where one has been brought up. But, as has been said earlier, this does not mean that this adapted behaviour is conscious. One's society may be familiar, but unknown with respect to its conceptual structure.

The gymnasium students' judgement of the possibilities for development and the way this is visualised in the social texture of their familiar society is based on the concepts underlying the B- model. This result was very clear after their first exposure to the "civil cliff" and remained so after studies of concepts related to several models. Despite that the texts that might have been associated to this model were rather few in the literature course, the students found these concepts easiest to learn. Further, on the comprehension test that followed the literature course there were two items belonging to the behaviourism, which were comprehended by all four classes alike. This indicates that concepts associated with behaviourism are easiest to perceive when put into operation in the real world. The students are used to move around in a behaviourist society, so they pick up those affordances at their first exposure, even though Sweden is not known conceptually to them at that point in time. The result is supported by the referred study (B. Bierschenk, 1992), in which gymnasium students wrote about Sweden as a country to live in. What they focussed on was the "social engineering" aspect of the society, that is, the compact surface of public sector (health care, job market, etc), unaware of "model".

The competence of the gymnasium students in judging their civil environment from the conceptual point of view augmented significantly through the nine weeks period of influence. The education has contributed to a rise in qualification and thus a more conceptually founded perception. However, conceptual development is not identical for all participants no matter how equivalent their instruction has been. For sure, the personal prerequisites are different and the classes had different characteristics, according to the teachers. If we compare the single classes' perception from occasion 1 to 2, there are internal differences in the models, which should be dependent on acquired knowledge and insights. Against the background that the familiar society cannot be known in another way than by association to and comparison with something already known, this comparison becomes similar only to the extent that the perceptual invariants of the observer allows it to be. It has become known from other studies (Bierschenk & Bierschenk, 1993) that perception of ecological invariants of import for the solution of risky situations to a high extent is dependent on something that may be called interest or perspective of life. Similarly, the four classes have different perspectives when they learn model concepts. The N-

class was a natural science class with a technical profile while the NH-class was a natural science class with a humanistic profile, which would explain some of the differences in the perception of the natural science students. Further a similar disparity profile can have a disparate conceptual ground. So, the similarities that were noticed between the NH- and the AE-students at the first test occasion became differentiated conceptually at the second occasion. This experiment has shown that the natural competence to "correctly" perceive and function in the familiar milieu may be interrupted by systematic education. Thereby the familiar society, intuitively known to the 19-year-olds, became conceptually known and specified to them.

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